

its tough, leathery, purple-red pigmented test, but differs in the nature of the siphonal armature and the more numerous stigmata in each mesh. It has all characters described by Hartmeyer and Michaelsen (1928), and Kott (1985).

KEY TO THE SPECIES OF *MICROCOSMUS* RECORDED FROM INDIA

1. Siphonal armature absent *M. helleri*
- Siphonal armature present 2
2. Siphonal armature rounded scales *M. squamiger*
- Siphonal armature spines 3
3. Branchial folds 5 on each side, with only 10 internal longitudinal vessels on folds *M. curvus*

- Branchial folds more than 5, with more than 20 internal longitudinal vessels on folds 4
- 4. Siphonal armature flattened spines *M. exasperatus*
- Siphonal armature needle-like spines *M. pupa*

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28. NEW RECORD OF WOLF SPIDERS (ARANEAE: LYCOSIDAE) OF THE GENUS *HIPPASA* SIMON FROM BANGLADESH¹

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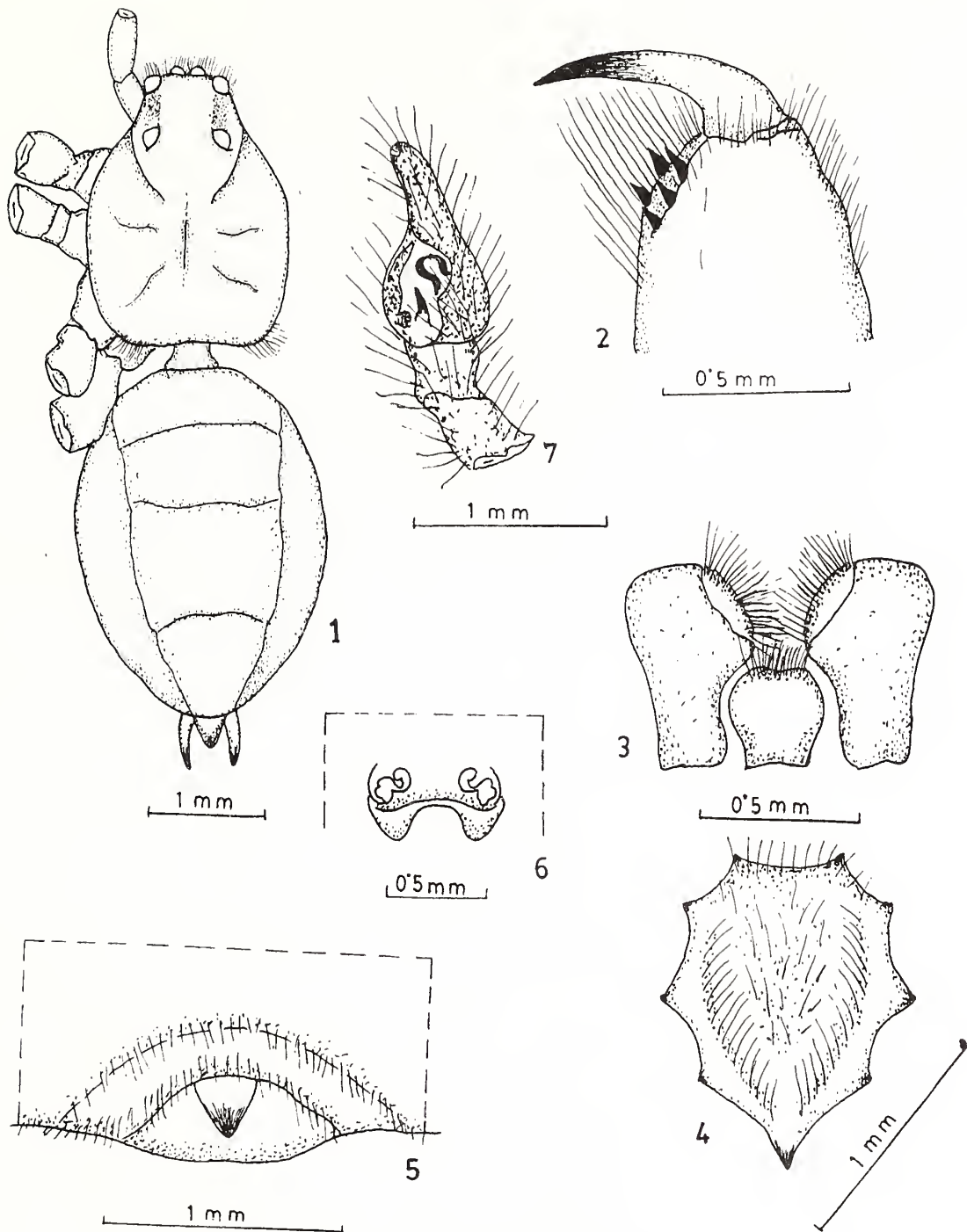
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Introduction

Wolf spiders (Family Lycosidae) are one of the common ground dwelling predators of crop-fields and other habitats. In Bangladesh, works on these spiders are scarce except a few ones are (Chowdhury and Nagari 1981; Chowdhury and Pal 1984; Biswas *et al.* 1993; Okuma *et al.* 1993; Begum and Biswas 1997) found. But in the neighbouring countries like-

India (Pocock 1900; Gravely 1924; Tikader 1970, 1977a, 1977b; Tikader and Biswas 1981; Tikader and Malhotra 1976, 1980; Tikader and Mukerjee 1971), Burma (now Myanmar) (Thorell 1895), Pakistan (Dyal 1935), China (Chen and Zhang 1991; Zhao 1993; Song *et al.* 1999), Japan (Tanaka 1985; Yaginuma 1986) where several contributions are made on this group.



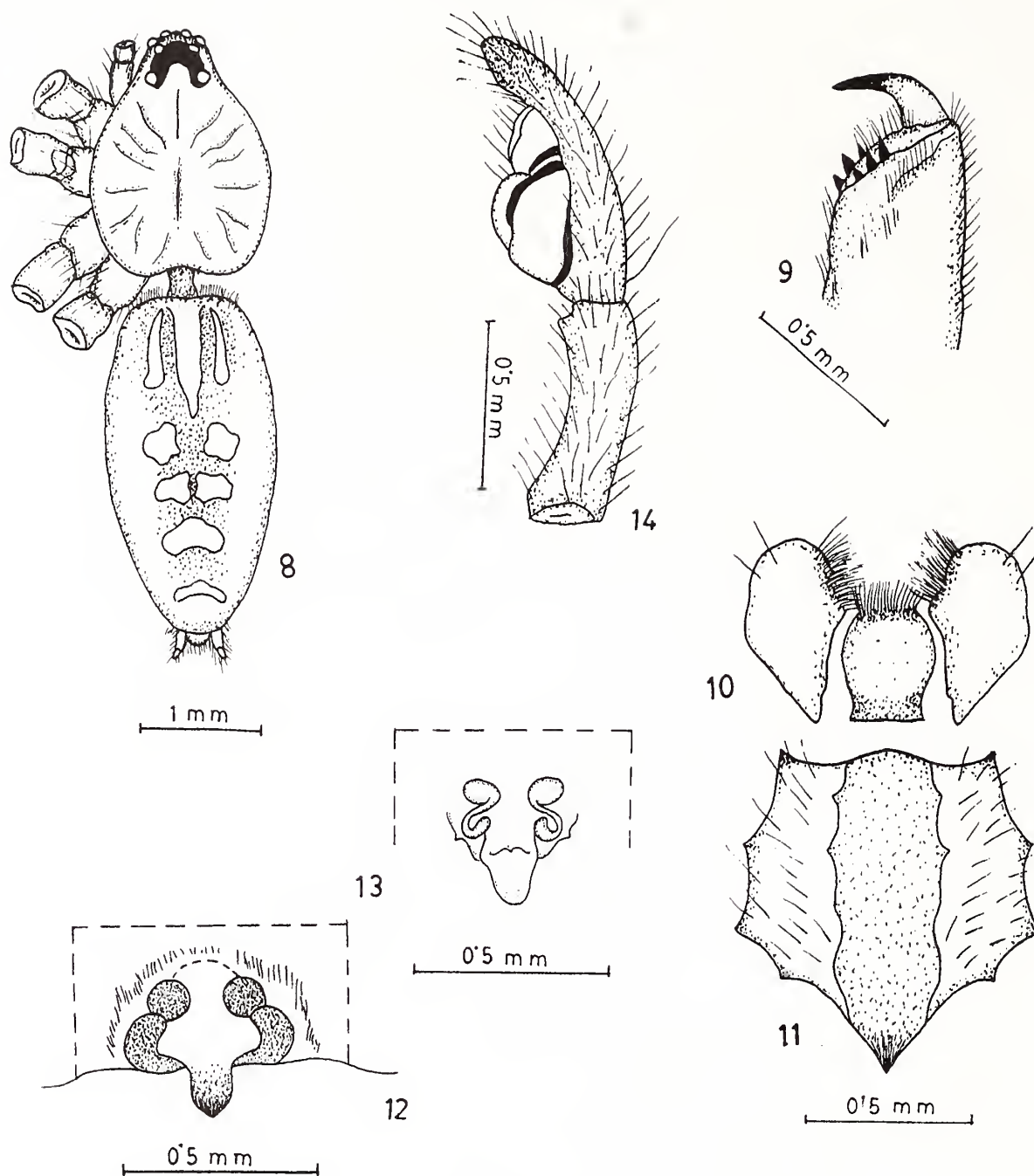
Figs 1-7: *Hippasa greenaliae* (Blackwall)

1. *H. greenaliae* (dorsal view), 2. Chelicerae, 3. Maxillae and Labium, 4. Sternum, 5. Epigynum, 6. Internal genitalia, 7. Male palp

The present paper deals with four newly recorded species of the genus *Hippasa* Simon from Bangladesh. All these species are variable in some external morphological characters and measurements with the earlier described species. Therefore, only a brief description of some variable characters and measurements of body segments are presented with necessary drawings for each of the species. The

specimens are identified from the Zoological Survey of India, Kolkata and the measurements are taken in millimetres.

The materials are at present in the collection of the Department of Zoology, Government P.C. College, Bagerhat and will be deposited to the Museum of the Department of Zoology, University of Dhaka, Bangladesh, in due course of time.



Figs 8-14: *Hippasa holmarae* Thorell

8. *H. holmarae* (dorsal view), 9. Chelicerae, 10. Maxillae and Labium, 11. Sternum, 12. Epigynum, 13. Internal genitalia, 14. Male palp

Systematics

Genus: *Hippasa* Simon 1885

1885. *Hippasa* Simon, Bull. Soc. Zool. Fr., 10: 31.

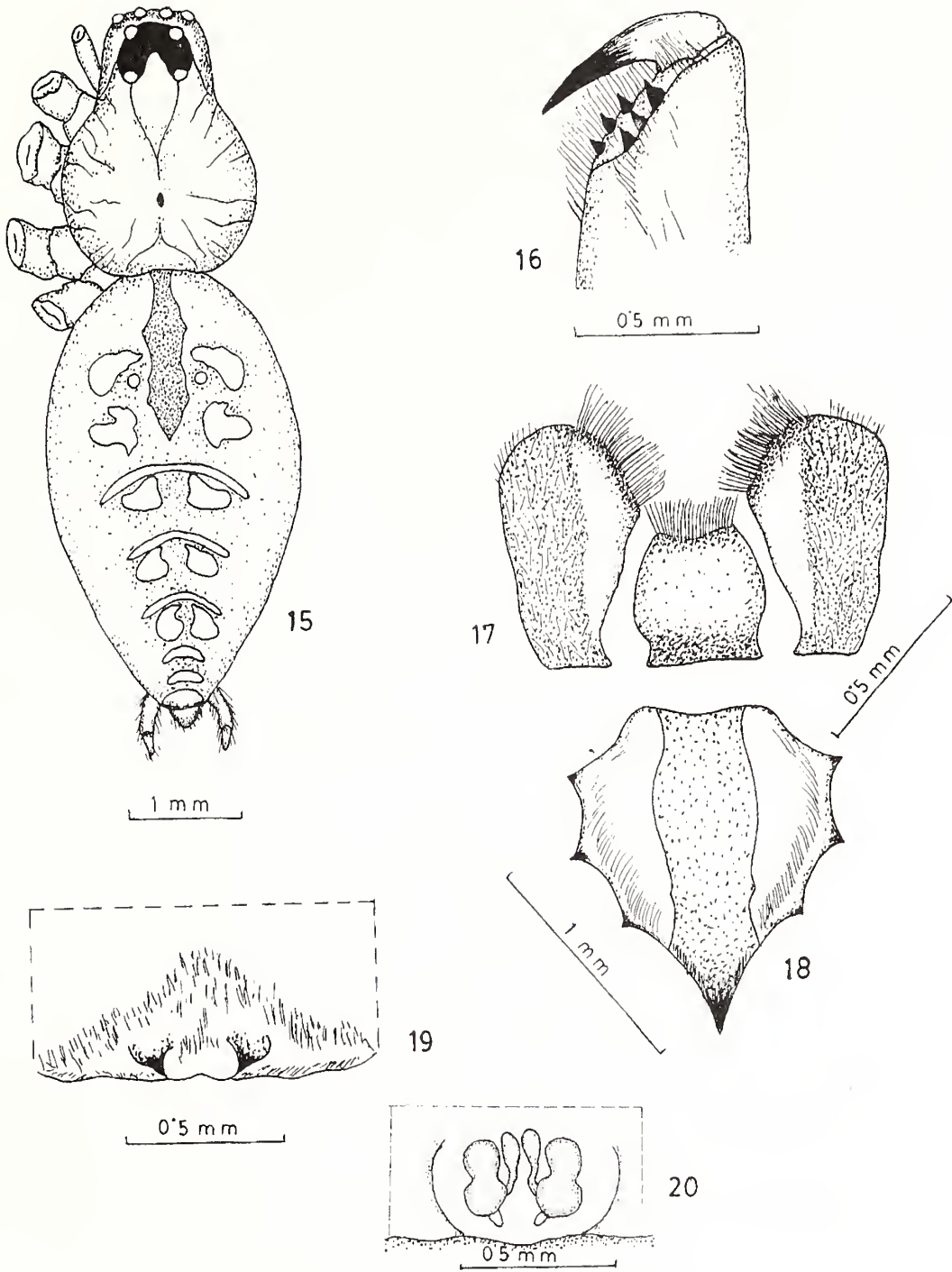
Diagnosis: Cephalothorax longer than wide, medially usually wide, centrally with a deep brown fovea. Eyes in 3 rows – anterior, middle and posterior; anterior row nearly straight or slightly recurved; eyes of 2nd and

3rd row basally with black patches; anterior row of eyes longer than the 2nd; space enclosed between the posterior eyes wider behind. Sternum with a black mid-longitudinal band.

Abdomen long, nearly cylindrical; posterior spinnerets considerably longer than the anterior spinnerets.

Type-species: *Hippasa agelenoides* (Simon)

Distribution: Africa; Asia; Europe



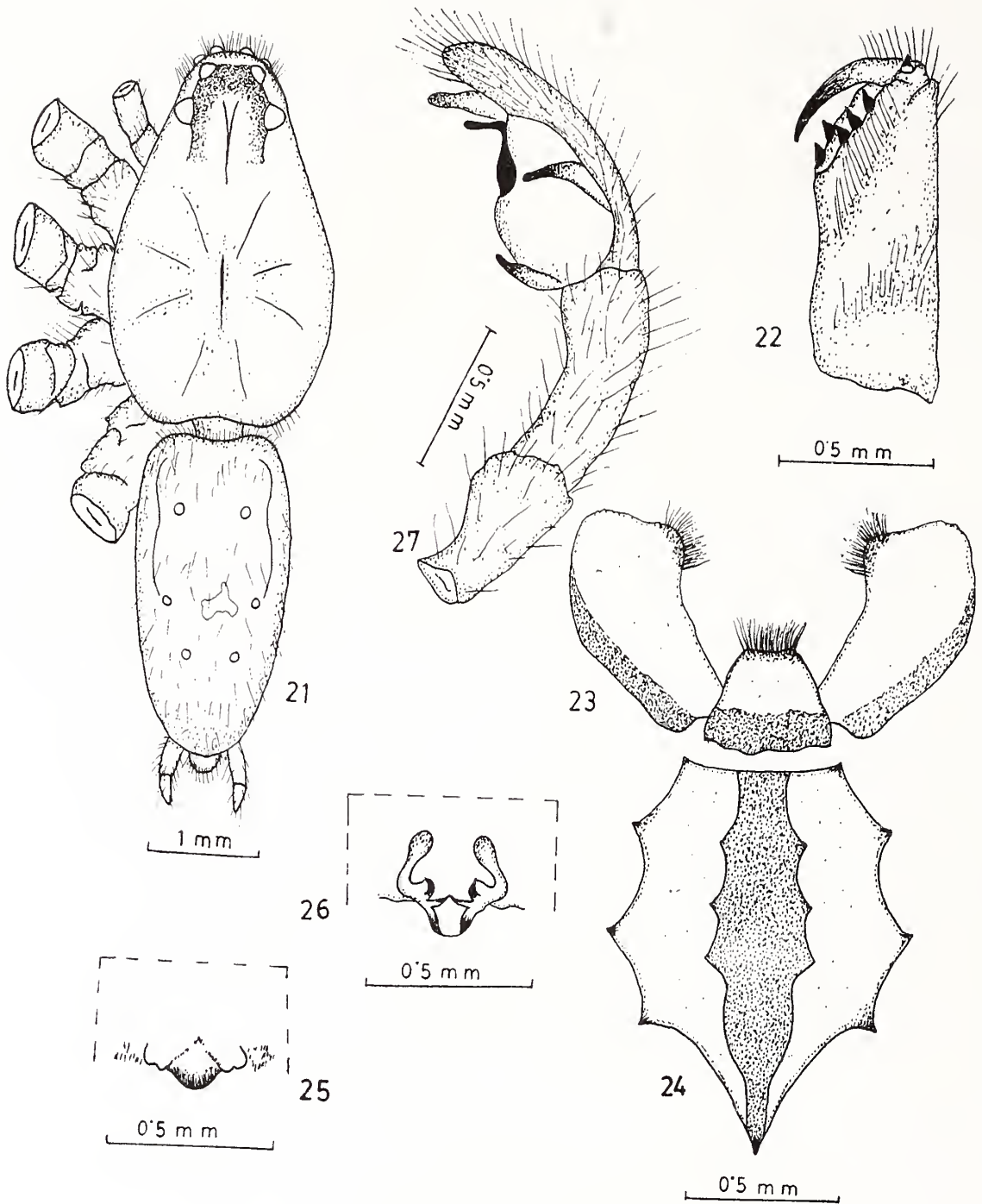
Figs 15-20: *Hippasa partita* (Cambridge)

15. *H. partita* (dorsal view), 16. Chelicerae, 17. Maxillae and Labium, 18. Sternum, 19. Epigynum, 20. Internal genitalia

KEY TO THE SPECIES

1. Cephalothorax elongate, anteriorly narrowed (Fig. 21); 3rd row of eyes much larger and widely placed; abdominal dorsum with 3 pairs of small spots, otherwise not decorated; labium basally broad (Fig. 23) *pisaurina*
- Cephalothorax never elongate; 3rd row of eyes similar to the 2nd row; abdominal dorsum never with such spots but always

2. Sternum typically heart-shaped, devoid of any longitudinal band (Fig. 4); abdominal dorsum with 2 longitudinal posteriorly narrowing furrows interconnected by 3 transverse ones (Fig. 1); cheliceral outer margin with 2 teeth (Fig. 2) *greenaliae*
- Sternum never as above, but always with a longitudinal band; abdominal dorsum never with any furrow; outer margin of chelicerae with 3 teeth 3



Figs 21-27: *Hippasa pisaurina* Pocock

21. *H. pisaurina* (dorsal view), 22. Chelicerae, 23. Maxillae and Labium, 24. Sternum, 25. Epigynum, 26. Internal genitalia, 27. Male palp

- 3. Epigyne tongue-like (Fig. 19); cephalic region constricted (Fig. 15); anterior row of eyes straight; maxillae basally flat and distally broad (Fig. 17); sternum broad anteriorly (Fig. 18) *partita*
- Epigyne never as above (Fig. 12); cephalic region never constricted (Fig. 8); anterior row of eyes recurved; maxillae basally pointed, medially broad and anteriorly narrowing (Fig. 10); sternum broad below the middle (Fig. 11) *holmarae*

***Hippasa greenaliae* (Blackwall)**
(Figs 1-7)

1867. *Lycosa greenaliae* Blackwall, Ann. Mag. Nat. Hist. 3 (19): 387.

Description: Colour: Cephalothorax dark brown; legs yellow brown and abdomen brown with white patches.

Measurements (Female): Total body length 7.00 mm. Carapace length 3.50 mm; carapace width 2.50 mm; abdominal length 3.50 mm; abdominal width 2.10 mm. (Male): Total body length 6.00 mm. Carapace length 2.40 mm; carapace width 2.00 mm; abdominal length 3.60 mm; abdominal width 1.80 mm.

Material examined: 1 ♀, Bagerhat, 12.vii.1991, Coll. V. Biswas; 2 ♀, 1 ♂, Faridpur, 18.v.1992, Coll. V. Biswas; 1 ♀, BARI, Jessore, 14.ix.1992, Coll. V. Biswas; 1 ♀, Pabna, 9.iv.1992, Coll. V. Biswas; 2 ♀, 1 ♂, Pirojpur, 12.vii.1992, Coll. V. Biswas; 2 ♀, Digha, Rajshahi, 3.iii.1992, Coll. V. Biswas.

Distribution: BANGLADESH: Bagerhat, Faridpur, Jessore, Jhenidah, Pabna, Pirojpur, and Rajshahi; India; Sri Lanka (Tikader and Malhotra 1980).

Hippasa holmarae Thorell

(Figs 8-14)

1895. *Hippasa holmarae* Thorell, Spiders of Burma: 218.

Description: Colour: Cephalothorax golden yellow; legs yellow and abdomen gray. Measurements (Female): Total body length 7.00 mm. Carapace length 3.60 mm; carapace width 2.50 mm; abdominal length 3.40 mm; abdominal width 2.00 mm. (Male): Total body length 6.00 mm. Carapace length 2.50 mm; carapace width 2.00 mm; abdominal length 3.50 mm; abdominal width 1.80 mm.

Material examined: 3 ♀, Barisal, 18.ii.1991, Coll. V. Biswas; 2 ♀, Chandpur, Comilla, 12.v.1991, Coll. V. Biswas; 2 ♀, Potia, Chittagong, 12.iii.1992, Coll. V. Biswas; 3 ♀, S. Park, Dhaka, 4.v.1991, Coll. V. Biswas; 2 ♀, 1 ♂, Modhukhali, Faridpur, 12.v.1990, Coll. V. Biswas; 2 ♀, Nawapara, Jessore, 12.viii.1989, Coll. V. Biswas; 2 ♀, 1 ♂, Chalna, Khulna, 18.ix.1990, Coll. V. Biswas; 2 ♀, 1 ♂, Digha, Rajshahi, 4.iii.1992, Coll. V. Biswas; 2 ♀, BTRI, Srimongal, Sylhet, 18.x.1992, Coll. V. Biswas.

Distribution: BANGLADESH: Barisal, Chittagong, Comilla, Dhaka, Faridpur, Jessore, Khulna, Pabna, Rajshahi, Sylhet; Burma; China; India; Singapore (Tikader and Malhotra 1980).

Hippasa partita (Cambridge)

(Figs 15-20)

1876. *Trochosa partita* Cambridge, Proc. Zool. Soc.: 541.

Description: Colour: Cephalothorax yellow-brown, legs yellow and abdomen blackish with few transverse whitish hairy bands. Measurements (Female): Total body length 8.00 mm. Carapace length 3.50 mm; carapace width 2.60 mm;

abdominal length 4.50 mm; abdominal width 2.00 mm.

Material examined: 2 ♀, BRRI, Joydevpur, Gazipur, 15.ix.1992, Coll. V. Biswas; 2 ♀, Shikarpur, Jhenidah, 19.xi.1991, Coll. V. Biswas; 1 ♀, Arpara, Magura, 18.viii.1992, Coll. V. Biswas; 2 ♀, Teroshri, Manikganj, 11.ix.1992, Coll. V. Biswas; 2 ♀, RU Campus, Rajshahi, 3.iii.1992, Coll. V. Biswas; 3 ♀, Digha, Rajshahi, 4.iii.1992, Coll. V. Biswas.

Distribution: BANGLADESH: Gazipur, Jhenidah, Magura, Manikganj, Rajshahi; Alexandria; Arabia; Central Asia; Egypt; India; Pakistan (Tikader and Malhotra 1980).

Hippasa pisaurina Pocock

(Figs 21-27)

1900. *Hippasa pisaurina* Pocock, Fauna Brit. India, Arach.: 250.

Description: Colour: Cephalothorax yellow; legs yellow-brown and abdomen blackish. Measurements (Female): Total body length 10.30 mm. Carapace length 4.00 mm; carapace width 3.00 mm; abdominal length 6.30 mm; abdominal width 3.20 mm. (Male): Total body length 7.00 mm. Carapace length 2.50 mm; carapace width 1.90 mm; abdominal length 4.50 mm; abdominal width 2.00 mm.

Material examined: 2 ♀, Barisal, 11.iii.1992, Coll. V. Biswas; 2 ♀, S. Park, Dhaka, 18.x.1991, Coll. V. Biswas; 2 ♀, Shikarpur, Jhenidah, 8.ix.1989, Coll. V. Biswas; 2 ♀, 1 ♂, Daulatpur, Khulna, 12.v.1991, Coll. V. Biswas; 1 ♀, Teroshri, Manikganj, 28.v.1992, Coll. V. Biswas; 2 ♀, BAU, Mymensingh, 18.v.1992, Coll. V. Biswas; 2 ♀, Pabna, 19.v.1991, Coll. V. Biswas; 3 ♀, Rajshahi, 4.iii.1992, Coll. V. Biswas; 1 ♀, Nagarpur, Tangail, 5.viii.1992, Coll. V. Biswas; 1 ♂, Kurigram, Rangpur, 11.iii.1992, Coll. V. Biswas.

Distribution: BANGLADESH: Barisal, Dhaka, Faridpur, Jessore, Jhenidah, Khulna, Manikganj, Mymensingh, Pabna, Rajshahi, Rangpur, Tangail; India; Pakistan (Tikader and Malhotra 1980).

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29. ADDITIONS TO THE GRASS GENERA OF NORTH-WEST RAJASTHAN¹H.K. TAKHAR² AND S.S. KATEWA³¹Accepted January 03, 2006²Gram Post Badusar, via Roru-Bari, Dist. Sikar, Rajasthan 332 317, India. Email: hktakhar@yahoo.com³Laboratory of Ethnobotany and Agrostology, Department of Botany, College of Science, Udaipur 313 001, Rajasthan, India. Email: sskatewa@yahoo.com

Intensive and extensive survey over the last seven years on the grass flora, Family Poaceae, of north-western Rajasthan (comprising ten districts of north-west Rajasthan, namely Barmer, Churu, Ganganagar, Hanumangarh, Jaisalmer, Jodhpur, Nagaur, Sikar and Jhunjhunu) have yielded four unrecorded the grass genera from this region. Full description with distribution is provided for each genus in this paper. Voucher specimens have been deposited in the Herbarium of Laboratory of Ethnobotany and Agrostology, Department of Botany, College of Science, Udaipur, Rajasthan.

1. *Arthraxon lancifolius* (Trin.) Hochst. in Flora 39:188, 1856; Fischer in Fl. Mad. 3: 1729, 1934; Blatter and McCann Bomb. Grass. 77, 1935. Bor in Fl. Assam 5:378, 1940. Rhind, Grass, Burma 69, 1945; Raizada in Ind. For. Rec. 4:101, 1954; *Andropogon lancifolius* Trin. in Mem. Acad. Petersb. 6 ser 2:271, 1832; *Arthraxon microphyllus* Hochst. in Flora 39:188, 1856; Hook.f. Fl. Brit. Ind. 7:147, 1996; Haines, Bot. Bih. and Ori. 2:1026, 1924.

An annual. Culms 10-40 cm tall. Leaves lanceolate. Inflorescence: common axis very slender. Sessile spikelets: 2.5-3.5 mm long, straight, linear-lanceolate, almost compressed

laterally. Lower glume 3 mm long.

Ecology: A grass of damp habitats, growing in colonies, between rocks on walls of houses.

Fl. & Fr.: August-October

Locality: Jhunjhunu

IC number: 255256 (given by NBPGR, New Delhi)

Specimen examined: Takhar, 221

2. *Arundo donax* Linn. sp. Pl. loc. cit. FBI 7:302, 1896; Cook in FPB 3: 574, 1958; Bor in GBCIP 413, f. 44, 1960.

A perennial grass. Culms creeping below, finally erect, 1-6 m tall, hollow many-noded, green, simple or sparingly branched, terete, smooth and glabrous. Inflorescence a large, terminal, decompound, pulmose panicle. Grains 2.5 mm long.

Fl. & Fr.: August-October

Ecology: This stout reed grows in dry habitats when established, but it prefers plenty of moisture. As a fodder grass it is not of much account, but cattle will browse upon the young leaves.

Locality: Ranoli, Sikar and Jodhpur

IC number: 255341 (given by NBPGR, New Delhi)